

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method comprising:

modeling neural activity as single equivalent current dipoles (ECD's);

calculating [[a]] best fit dipole coordinates for each dipole;

calculating a field distribution based on the best fit dipole coordinates;

modifying the best fit dipole coordinates to create modified dipole coordinates;

calculating a modified field distribution based on the modified dipole coordinates;

computing a difference between the field distribution and the modified field distribution;

computing a confidence interval for each dipole coordinate based on the difference
between the field distribution and the modified field distribution; and

displaying the confidence interval[[s]] in an overlay on a three-dimensional image
obtained through the use of either magnetic resonance imaging (MRI) or computerized
tomography (CT).
2. (previously presented) The method of claim 1, wherein the step of computing a
confidence interval includes computing an error ellipsoid using a Singular Value Decomposition.
3. (canceled)
4. (previously presented) The method of claim 1, wherein the step of modeling includes
assuming the geometric and conductive properties of cardiac or cortical tissue.
- 5 – 6. (canceled)

7. (currently amended) The method of claim 1 [[6]], wherein the step of computing a confidence interval includes the step of performing a signal to noise ratio analysis.

8. (previously presented) The method of claim 1, and further comprising defining a Cartesian coordinate system.

9 – 10. (canceled)

11. (currently amended) An apparatus comprising:

a detector;

a processor adapted to receive data from the detector, the processor capable of using the data to calculate [[a]] best fit dipole coordinates, modified dipole coordinates, a field distribution based on the best fit dipole coordinates, a modified field distribution based on the modified dipole coordinates, and a confidence interval based on the difference between the field distribution and the modified field distribution;

an imaging source in communication with the processor; and

a display in communication with the processor and adapted to display the confidence interval in three dimensions relative to a three-dimensional anatomical image, wherein the three-dimensional anatomical image is obtained through the use of the imaging source.

12. (canceled)

13. (previously presented) The apparatus of claim 11, wherein the imaging source is an MRI unit.

14. (previously presented) The apparatus of claim 11, wherein the imaging source is a CT unit.

15. (previously presented) The apparatus of claim 11, wherein the detector comprises electroencephalogram sensors.

16. (previously presented) The apparatus of claim 11, wherein the detector comprises magnetoencephalogram sensors.

17. (currently amended) A method comprising:

measuring a plurality of electrical or magnetic signals;

calculating [[a]] best fit dipole coordinates for each signal;

calculating a field distribution based on the best fit dipole coordinates;

modifying the best fit dipole coordinates to create modified dipole coordinates;

calculating a modified field distribution based on the modified dipole coordinates;

computing a difference between the field distribution and the modified field distribution;

computing a confidence interval for the best fit dipole coordinates for each signal based on the difference between the field distribution and the modified field distribution ~~each dipole~~ ~~coordinate~~; and

displaying the confidence interval on a three-dimensional anatomical map, wherein the confidence interval is displayed in its anatomical position in three dimensions.

18. (currently amended) The method of claim 17, wherein the step of computing a confidence interval includes computing [[a]] confidence ellipsoid axes from an estimated noise level and different field~~[[s]]~~ strengths.

19. (previously presented) The method of claim 17, wherein the step of displaying includes the step of receiving a digital image.

20. (previously presented) The method of claim 17, wherein the step of computing a confidence interval includes the step of computing a confidence volume.

21. (previously presented) The apparatus of claim 13, wherein the detector comprises electroencephalogram sensors.

22. (previously presented) The apparatus of claim 14, wherein the detector comprises electroencephalogram sensors.
23. (new) The method of claim 8, wherein the Cartesian coordinate system is anchored on at least three fiducial points on a patient's head.
24. (new) The method of claim 17, further comprising defining a Cartesian coordinate system anchored on at least three fiducial points on a patient's head.